

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-46 (Canceled)

47. (Withdrawn) A substrate for information recording medium composed of crystallized glass comprising enstatite and/or its solid solution as main crystals and the mean particle size of the crystal particles contained in the crystallized glass as main crystals is equal to or less than 100 nm.

48. (Withdrawn) The substrate according to claim 47, wherein the mean particle size of the crystal particles contained in the crystallized glass as main crystals is equal to or less than 70 nm.

Claims 49-53 (Canceled)

54. (Withdrawn) The substrate according to claim 47, wherein the crystallization degree of the crystallized glass is equal to or more than 50 vol%.

55. (Withdrawn) The substrate according to claim 49, wherein the crystallization degree of the crystallized glass is equal to or more than 50 vol%.

56-59 (Canceled)

60. (Withdrawn) The substrate according to claim 47, wherein the total content of enstatite and/or its solid solution ranges from 70 to 90 vol%, the content of titanate ranges from 10 to 30 vol%, and the sum of enstatite and/or its solid solution and titanate is equal to or more than 90 vol%.

61. (Withdrawn) The substrate according to claim 49, wherein the total content of enstatite and/or its solid solution ranges from 70 to 90 vol%, the content of titanate ranges from 10 to 30 vol%, and the sum of enstatite and/or its solid solution and titanate is equal to or more than 90 vol%.

62. (Withdrawn) A substrate for information recording medium composed of crystallized glass comprising enstatite and/or its solid solution as main crystals and thermal extension coefficient of the crystallized glass is in the range of from 65×10^{-7} to $85 \times 10^{-7}/^{\circ}\text{C}$.

63. (Withdrawn) The substrate according to claim 62, wherein the thermal extension coefficient of the crystallized glass is in the rang of from 73×10^{-7} to $83 \times 10^{-7}/^{\circ}\text{C}$.

64- 67 (Canceled)

68. (Withdrawn) The substrate according to claim 47, wherein the crystallized glass substantially does not comprise quarts solid solution as the main crystals.

69. (Withdrawn) The substrate according to claim 49, wherein the crystallized glass substantially does not comprise quarts solid solution as the main crystals.

70. (Withdrawn) The substrate according to claim 62, wherein the crystallized glass substantially does not comprise quarts solid solution as the main crystals.

71-74 (Canceled)

75. (Withdrawn) The substrate according to claim 47, wherein the crystallized glass substantially does not comprise spinel as a crystal phase.

76. (Withdrawn) The substrate according to claim 49, wherein the crystallized glass substantially does not comprise spinel as a crystal phase.

77. (Withdrawn) The substrate according to claim 62, wherein the crystallized glass substantially does not comprise spinel as a crystal phase.

78-81 (Canceled)

82. (Withdrawn) The substrate according to claim 47, wherein the crystallized glass substantially does not comprise ZnO.

83. (Withdrawn) The substrate according to claim 49, wherein the crystallized glass substantially does not comprise ZnO.

84. (Withdrawn) The substrate according to claim 62, wherein the crystallized glass substantially does not comprise ZnO.

85-105 (Canceled)

106. (New) A substrate for an information recording medium composed of crystallized glass comprising SiO_2 , Al_2O_3 , MgO and alkali metal oxides and being substantially free of ZnO, wherein the crystallized glass comprises Al_2O_3 in an amount of 5 to 25 mol% and alkali metal oxides in an amount equal to or less than 5 mol%, main crystals contained in the crystallized glass consist of enstatite and/or its solid solution, thermal expansion coefficient of the crystallized glass at 100 to 300°C is in the range of from 65×10^{-7} to $85 \times 10^{-7}/^\circ\text{C}$, and the substrate has a polished surface with a surface roughness Ra (JIS B0601) equal to or less than 1nm.

107 (New) A substrate for an information recording medium composed of crystallized glass comprising SiO_2 , Al_2O_3 , MgO , Y_2O_3 and alkali metal oxides, wherein the crystallized glass comprises Al_2O_3 in an amount of 5 to 25 mol%, alkali metal oxides in an amount equal to or less than 5 mol% and Y_2O_3 in an amount of 0.3 to 10 mol%, main crystals contained in the crystallized glass consist of enstatite and/or its solid solution, and the substrate has a polished surface with a surface roughness Ra (JIS B0601) equal to or less than 1 nm.

108 (New) A substrate for an information recording medium composed of crystallized glass comprising SiO_2 , Al_2O_3 , MgO and alkali metal oxides, and being substantially free of ZnO , wherein the crystallized glass comprises Al_2O_3 in an amount of 5 to 25 mol%, alkali metal oxides in an amount equal to or less than 5 mol%, wherein K_2O is present in an amount which ranges from 0.1 to 2 mol%, main crystals contained in the crystallized glass consist of enstatite and/or its solid solution, and the substrate has a polished surface with a surface roughness R_a (JIS B0601) equal to or less than 1 nm.

109. (New) The substrate according to claim 106, wherein the crystallized glass further contains Y_2O_3 in an amount of 0.3 to 10 mol%.

110. (New) The substrate according to claim 106, wherein Al_2O_3 is present in an amount of 7 to 22 mol%.

111. (New) The substrate according to claim 107, wherein Al_2O_3 is present in an amount of 7 to 22 mol%.

112. (New) The substrate according to claim 108, wherein Al_2O_3 is present in an amount of 7 to 22 mol%.

113. (New) The substrate according to claim 106, wherein the thermal expansion coefficient of the crystallized glass at 100 to 300°C is in the range of from 73×10^{-7} to $83 \times 10^{-7}/^{\circ}\text{C}$.

114. (New) The substrate according to claim 106, wherein the crystallized glass comprises Al_2O_3 in an amount of 7 to 22 mol% and the thermal expansion coefficient of the crystallized glass at 100 to 300°C is in the range of from 73×10^{-7} to $83 \times 10^{-7}/^{\circ}\text{C}$.

115. (New) The substrate according to claim 106, wherein the crystallized glass further contains K_2O in an amount of 0.1 to 2 mol%.

116. (New) The substrate according to claim 107, wherein the crystallized glass further contains K_2O in an amount of 0.1 to 2 mol%.

117. (New) The substrate according to claim 106, wherein the crystallized glass comprises:

SiO_2 : 35 to 65 mol%

MgO : 10 to 40 mol% and

TiO₂ : 5 to 15 mol%,

wherein the sum of SiO₂, Al₂O₃, MgO and TiO₂ is equal to or more than 93 mol% and a molar ratio of Al₂O₃ to MgO is less than 0.5.

118. (New) The substrate according to claim 107, wherein the crystallized glass comprises:

SiO₂ : 35 to 65 mol%

MgO : 10 to 40 mol% and

TiO₂ : 5 to 15 mol%,

wherein the sum of SiO₂, Al₂O₃, MgO and TiO₂ is equal to or more than 93 mol% and a molar ratio of Al₂O₃ to MgO is less than 0.5.

119. (New) The substrate according to claim 108, wherein the crystallized glass comprises:

SiO₂ : 35 to 65 mol%

MgO : 10 to 40 mol% and

TiO₂ : 5 to 15 mol%,

wherein the sum of SiO₂, Al₂O₃, MgO and TiO₂ is equal to or more than 93 mol% and a molar ratio of Al₂O₃ to MgO is less than 0.5.

120. (New) The substrate according to claim 106, wherein the crystallized glass comprises:

SiO₂ : 35 to 65 mol%

Al₂O₃ : 7 to 22 mol%

MgO : 10 to 40 mol%, and

TiO₂ : 5 to 15 mol%,

wherein the sum of SiO₂, Al₂O₃, MgO and TiO₂ is equal to or more than 93 mol% and a molar ratio of Al₂O₃ to MgO is less than 0.5.

121. (New) The substrate according to claim 107, wherein the crystallized glass comprises:

SiO₂ : 35 to 65 mol%

Al₂O₃ : 7 to 22 mol%

MgO : 10 to 40 mol%, and

TiO₂ : 5 to 15 mol%,

wherein the sum of SiO₂, Al₂O₃, MgO and TiO₂ is equal to or more than 93 mol% and a molar ratio of Al₂O₃ to MgO is less than 0.5.

122. (New) The substrate according to claim 108, wherein the crystallized glass comprises:

SiO₂ : 35 to 65 mol%

Al₂O₃ : 7 to 22 mol%

MgO : 10 to 40 mol%, and

TiO₂ : 5 to 15 mol%,

wherein the sum of SiO₂, Al₂O₃, MgO and TiO₂ is equal to or more than 93 mol% and a molar ratio of Al₂O₃ to MgO is less than 0.5.

123. (New) The substrate according to claim 107, wherein the crystallized glass is substantially free of ZnO.

124. (New) The substrate according to claim 106, wherein the substrate has a polished surface with a surface roughness Ra (JIS B0601) equal to or less than 0.5nm.

125. (New) The substrate according to claim 107, wherein the substrate has a polished surface with a surface roughness Ra (JIS B0601) equal to or less than 0.5nm.

126. (New) The substrate according to claim 108, wherein the substrate has a polished surface with a surface roughness Ra (JIS B0601) equal to or less than 0.5nm.

127. (New) The substrate according to claim 106, wherein light transparency at 600nm through the substrate with 1 mm thickness is equal to or more than 10%.

128. (New) The substrate according to claim 107, wherein light transparency at 600nm through the substrate with 1 mm thickness is equal to or more than 10%.

129. (New) The substrate according to claim 108, wherein light transparency at 600nm through the substrate with 1 mm thickness is equal to or more than 10%.

130 (New) The substrate according to claim 106, wherein the crystallization degree of the crystallized glass is equal to or more than 50 vol%, as well as in the crystalline phase, the total content of enstatite and/or its solid solution ranges from 70 to 90 vol%, titanate is present in an amount which ranges from 10 to 30 vol%, and the sum of enstatite and/or its solid solution and titanate is equal to or more than 90 vol%.

131. (New) The substrate according to claim 107, wherein the crystallization degree of the crystallized glass is equal to or more than 50 vol%, as well as in the crystalline phase, the total content of enstatite and/or its solid solution ranges from 70 to 90 vol%, titanate is present in an amount which ranges from 10 to 30 vol%, and the sum of enstatite and/or its solid solution and titanate is equal to or more than 90 vol%.

132. (New) The substrate according to claim 108, wherein the crystallization degree of the crystallized glass is equal to or more than 50 vol%, as well as in the crystalline phase, the total content of enstatite and/or its solid solution ranges from 70 to 90 vol%, titanate is present in an amount which ranges from 10 to 30 vol%, and the sum of enstatite and/or its solid solution and titanate is equal to or more than 90 vol%.

133. (New) The substrate according to claim 106, wherein the crystallized glass is substantially free of spinel as a crystal phase.

134. (New) The substrate according to claim 107, wherein the crystallized glass is substantially free of spinel as a crystal phase.

135. (New) The substrate according to claim 108, wherein the crystallized glass is substantially free of spinel as a crystal phase.